REMARKS

Claims 9 and 10 stand objected to for informalities of language construction. These claims 9 and 10 have been amended herein consistent with the Examiner's remarks.

Claim 12 stands rejected under 35 USC 112 for the use of the language "use or a method". Claim 12 has been amended herein to overcome this §112 rejection.

Claims 1-4, 7, 9-10, and 12 stand rejected under 35 USC 102(e) as being anticipated by Adolph et al. (US 6754586). This rejection is respectfully TRAVERSED.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987) MPEP 2131.

An anticipation reference must be shown in as complete detail as is recited in the claims. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989) MPEP 2131.

For anticipation, the elements shown in a reference must be arranged as required the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990) Identity of elements, and not identity of terminology is required, thus there is not *ipsissma verbis* test. MPEP 2131.

Under 35 USC 102(e) the entire disclosure of: a US patent; a US application publication; or an international application (PCT) publication having an earlier effective US filing date can be used as prior art against the claims in an application having a later effective US filing date. *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 10 USPQ2d 1338 (Fed. Cir. 1989) The reference must itself contain the subject matter relied upon of the rejection.

To anticipate the present invention, the prior art reference must employ identical or equivalent structures to accomplish the identical function in substantially the same way to provide substantially the same result. The claimed invention is a "logging method".

In support of the TRAVERSAL, applicant urges that Adolph is fundamentally irrelevant to the technology of the present invention. Adolph is concerned with the pre-use calibration of a

logging tool containing a pulsed neutron generator, so that the signal strength of the PNG can be accounted for when the Adolph apparatus is in use in the field. Adolph expressly teaches his calibration steps to take place away from a borehole in a controlled environment. The thrust of the passages from Adolph upon which the Examiner relies, expressly concern the controlled environment. Adolph does not address a method of logging a geological formation.

Moreover, Adolph expressly recites that his detector detects pulse counts. A count "rate" is simply an indication of the number of counts per unit time. It follows that in the method disclosed by Adolph, when considering the use of the apparatus in a borehole, as compared with a calibration tank, the Adolph apparatus specifically makes use of (relies upon) the individual pulses. See Adolph Figs. 3 and 4 and col. 5, lines 27-60.

Specifically, the Adolph invention is inapposite for performing applicant's claimed method. Moreover, Adolph expressly teaches away from applicant's claimed method.

The purpose of the Adolph invention is to measure his neutron or gamma ray source to determine its <u>degradation</u> or instantaneous performance (strength) in order to compensate for changes in source strength. Count rates are detected by a monitor detector during the Adolph burst period B (where N_B is the burst pulse "count") and during the decay period D (where N_D is the decay pulse "count"). Adolph's count (N_B) during the burst period are both source neutrons (N_1) and borehole environmental neutrons (N_2), where Adolph's $N_B = N_1 + N_2$. Adolph's count N_D during the decay period is only environmental neutrons bounced back to the detector. Adolph uses the burst count rates N_B and decay count rates to determine a correction for the burst count rate N_B to derive a source strength according to the following formula:

$$\mathbf{S = \alpha(N_B - \beta(N_B,N_D) \times N_D)}$$

where $\boldsymbol{\alpha}$ is a normalizing factor and $\boldsymbol{\beta(N_B,N_D)}$ is a proportional factor between the decay "count" and the contributions of the environmental affected neutrons in the burst "count". The factors $\boldsymbol{\alpha}$ and $\boldsymbol{\beta(N_B,N_D)}$ are computed from measurements <u>made in the controlled environment</u> using a

neutron source having a known strength in order to merely calibrate his equipment an no more than that. See col. 7, lines 3-20, and lines 30-45, and lines 65-67 and col. 9, lines 60-66. Adolph states that his controlled environment for calibrating his equipment is a water tank. See col. 9, lines 6-8.

Adolph's calibration provides the following results: "N_0 = neutron monitor count rate and G_0 = source-dependent, gamma ray count rate (after counting loss correction and background subtration)." See col. 9, lines 8-10.

Adolph expressly teaches that it is only after his calibration of his equipment that he performs borehole logging. Adolph's logging is then performed and the following are obtained during his logging: N_1 = neutron monitor count rate, and G_1 = source dependent gamma ray count rate (after counting loss correction and background subtraction). Adolph then corrects his measured (logged) gamma ray counts (G_1) as a function of his neutron monitor count rate and his source-dependent gamma ray count rate according to the following equation:

$$\mathbf{G_{1C} = Corrected\ G_1 = (N_0 / N_1) \times G_1}$$

See col. 9, lines 11-17.

Adolph expressly recites that his calibration equation is not used in his logging process.

Adolph expressly recites that he must count individual pulses from his source and count the individual pulses from the formation caused by the radiation decay due to the capture of neutrons. In support of this counting Adolph discusses his Figs. 3 and 4 at col. 6, lines 51-67. The "PNG" line of Fig. 3 shows the Adloph timing pulses to operate the Adolph neutron generator (i.e., the Adolph neutron generator is operating during each pulse in the PNG line). The "DETECTOR" line of Fig. 3 shows the "B" (burst) and "D" (decay) pulses to operate the Adolph detector. Fig. 4 shows (on the X-axis) "time bins" during which a count is made; and (on the Y-axis) "count rate". Plotted in Adolph's Fig. 4 is both "burst" counts and "decay" counts.

Adolph expressly teaches away from the present invention.

Applicant does not count "burst" pulses (in applicant's method there are no "burst" counts). See applicant's claim 1, step (ii). In fact, applicant has invented a method because he expressly wanted to avoid counting burst pulses in order to avoid "pulse pile up" problems. See applicant's specification at page 3, fourth paragraph (bottom paragraph) where applicant states:

"neutrons are emitted in bursts so are the detector pulses, causing pulse pile up difficulty in resolving individual pulses and considerable problems in detector dead time correction if it is required to count the pulses as has been attempted" [sic: count both burst pulses and count decay pulses].

The cited reference, Adolph, clearly defines his equipment calibration method and his logging method. These Adolph methods neither anticipate nor suggest applicant's claimed method. Therefore, the standing § 102(e) rejection of claim 1 and of claims 2-4, 7, 9-10 and 12 dependent therefrom cannot be sustained and must be withdrawn.

Claims 5 and 6 stand rejected under 35 USC 103(a) as obvious in view of Adolph. Specifically the Examiner has alleged that Adolph's claim 2 and his discussion from col. 8, line 53 to col. 9, line 31 addresses background subtraction necessary for an accurate source dependent gamma count rate obviates claims 5 and 6. This rejection is respectfully TRAVERSED.

Adolph's discussion on col. 9 lines 1-65 has already been briefed herein above. Adolph's claim 2 recites his $\boldsymbol{\alpha}$ and $\boldsymbol{\beta(N_B,N_D)}$ factor limitations. These factors are addressed in herein above in regard to Adolph's col. 9, lines 60-66.

Specifically, Adolph is concerned with a source strength indicator S for his pulsed neutron source which is derived according to the equation already briefed herein above, to wit: $\mathbf{S = \alpha(N_B - \beta(N_B,N_D) \times N_D)}$, wherein N_B is the burst count rate, N_D is the decay count rate, $\boldsymbol{\alpha}$ is a normalizing factor associated with a monitor detector and a neutron source, and $\boldsymbol{\beta(N_B,N_D)}$ is a

proportional factor associated with the decay count rate and neutrons in the bust count rate. Adolph's burst count rate is a necessary factor in each part of both of his "factors". Applicant's method does not operate according to the Adolph equation, as Adolph method does. Moreover, applicant's method is precluded from operating according to Adolph's equation as applicant pays no attention to burst count rate and does not make (source) burst counts available. Lastly, Adolph's claim 2 and his specification at col. 7 and 9 clearly identify his factors $\boldsymbol{\alpha}$ and $\boldsymbol{\beta(N_B,N_D)}$ and therefore his equation $\mathbf{S = \alpha(N_B - \beta(N_B,N_D) \times N_D)}$ as <u>being derived in a controlled enviornment</u>. Applicant's method never goes near a controlled environment.

Applicant's claims 5 and 6 recite steps not addressed nor suggested by Adolph and certainly not made obvious by Adolph. Applicant's claim 5 recites: "(v) measuring the background gamma radiation level before each neutron generator burst occurs"; and claim 6 recites: "(vi) subtracting each measured background radiation value resulting from step (v) from the gamma radiation level measured by the detector of gamma radiation in the next succeeding burst and decay period". Adolpha does not suggest the operations recited in these steps nor does Adolph suggest these sequence of steps in combination with applicant's other recited steps. The standing § 103(a) rejection of claims 5 and 6 cannot be sustained on the basis alleged by the Examiner and therefore must be withdrawn.

Moreover, claims 5 and 6 depend from claim 1 which must now be considered allowable. Because of this dependency, claims 5 and 6 must now also further be considered allowable.

The discussion of technology and present invention recited above is herein incorporated by reference. The cited prior art reference does not anticipate nor suggest the limitations recited by the amended claims herein above.

It is urged that the application be re-examined as to the amended claims presented and consideration be given to the analysis and arguments briefed herein above. This case should now be passed to issue.

Date: 3/20/06

Respectfully submitted,
Paul & Paul

by: John J. Simkanich
Regis. No. 26,036
2900 Two Thousand Market Street
Philadelphia, PA 19103
(215) 568-4900
FAX 215-567-5057

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

on 3/20/06
(date)

PAUL & PAUL
by: John J. Simkanich

(signature)